

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR2003/001407

## A. CLASSIFICATION OF SUBJECT MATTER

**IPC7 H01M 4/90**

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC C01B 31/02, H01M 4/86, H01M 4/88, H01M 4/90

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Korean patents and applications for inventions since 1975  
Korean Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003/0108785 A1 (L. W, Auburn, Al.(US). 12, Jun. 2003) See the entire sentence	1-13
A	US 005879827 A (Minesota Mining and Manufacyuring Company, St. Paul, Minn. 09, Mar. 1999) See the entire sentence.	1-13
A	US 6482763 B2 (3M Innovative Properties Company, Saint paul, MN (US). 19, Nov. 2002) See the entire sentence	1-13
A	US 5928804 A (The University of Iowa Research Foundation, Iowa City, Iowa. 27, Jul. 1999) See the entire sentence	1-13

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents:  
"A" document defining the general state of the art which is not considered to be of particular relevance  
"E" earlier application or patent but published on or after the international filing date  
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)  
"O" document referring to an oral disclosure, use, exhibition or other means  
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art  
"&" document member of the same patent family

Date of the actual completion of the international search

13 APRIL 2004 (13.04.2004)

Date of mailing of the international search report

14 APRIL 2004 (14.04.2004)

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

PCT/KR2003/001407

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003/0108785 A1	12, Jun. 2003	None	None
US 5879827 A	09, Mar. 1999	WO 9919066 A1	02, 04, 1999
		EP 1021246 A1	26, 07. 2000
US 6482763 B2	19, Nov. 2002	WO 200148839 A2	05, 07. 2001
		EP 1249046 A2	16, 10. 2002
US 5928804 A	27, Jul. 1999	None	None